

(S) **CONFIDENTIAL**

25X1

25X1

Subject: Meeting on H-2061
Antenna Work at [redacted]
on 16 December 1955

25X1

Present: [redacted]

25X1

A discussion of the packaging and mechanical aspects of the antenna design brought out several problems. Some of the problems require mechanical layout work to be done by [redacted] to arrive at an acceptable solution. Some others depend upon conclusions to be reached with the customer.

25X1

The following were the points discussed and the conclusions reached based on the data at hand.

1. A full size model of the low band dipoles (70 to 170 mc and 170 to 400 mc) including reflecting screen was displayed. The size of the model seemed reasonable enough for use on a PT boat.
2. The base area of the antenna structure is approximately a nine foot square.
3. The samples of the high band horns (10 to 20 Kmc and 20 to 40 Kmc) have been fabricated without electroforming. They are to be tested electrically.
4. A sample of the "X" band horn has been fabricated. It has been tested as to VSWR. The VSWR spec. has been achieved except at low end of the frequency range. This is being investigated.
5. The crystal shutter problem has been satisfactorily solved by the use of a Danbury-Knudsen coaxial switch at frequencies up to 5 Kmc. Above 5 Kmc other methods are to be tried. The possibilities are; a camera type shutter arrangement or an over-the-mouth solenoid operated metal plate.
6. A Sylvania 1N446 (D799) is to be used in the 20-40 Kmc band, price \$47.50.
7. The following points are to be discussed with the customer:
 - a. Effect of sloping the low band dipoles, following the antenna super-structure.
 - b. Height of low band dipoles above cabin top.

CONFIDENTIAL

~~CONFIDENTIAL~~

-2-

- e. Interference effects on patterns caused by existing antennas aboard ship.
- d. Location of console unit on ship to determine cable runs and locations.
- e. Method of mounting antenna superstructure to cabin top.
- f. Color of radome
- g. Desirability for maintenance purposes of a power socket and availability of power from ship's supply.

The following are the suggestions for mechanical design of the antenna structure:

1. Upper Section:

- a. The honeycomb construction of the radome is not to be carbon filled.
- b. There is to be a permanent mounting for the horns.
- c. The radome cover is to be removable.
- d. The horns are to be fitted from inside through the honeycomb.

2. Center Section:

- a. There is to be a 15 to 18 inch square column.
- b. There are to be hinges on one to four sides. Four is preferred.
- c. Electrical components are to be on the rear side of the hinged members.
- d. The hinged panels are to be made of carbon filled fiberglass.
- e. All cables are to be inside rectangular column, possibly in conduit.
- f. The helical antennas are to be mounted on the outside of the hinged panels.
- g. The exterior conical radome is to be removable in sections.

3. Bottom Section:

- a. There is to be a fiberglass inverted dome at the lower end of the center section to reduce air turbulence.
- b. Electrical components for bands 1 and 2 are to be housed within this dome.
- c. Access to the components are to be via trapdoors cut in the dome. Components may be mounted on inside of the door.
- d. Except for trapdoors the dome section is a permanent part of the structure.

~~CONFIDENTIAL~~

-3-

CONFIDENTIAL

4. Lower Framework:

- a. Low band (bands 1 and 2) dipoles to be designed as appearing to be part of the antenna superstructure.
- b. Welded aluminum tubing is preferable for construction of the superstructure.
- c. The method of bringing down the cables from the radome is not definite. There are two possibilities; using a central cable conduit or fastening the cables to one of the superstructure legs.

5. General:

- a. The radome is not to be painted and should include notice stating same. The color of the radome is due to a dye added in the manufacturing process.
- b. The finish on metallic surfaces of the antenna structure are to be in accordance with MIL-E-16,400.
- c. The entire structure is to be weather-proofed with emphasis on sea-spray-proofing.
- d. Ladder hooks for maintenance purposes are to be included in the design of the structure.

25X1

sf

cc: Those Present

25X1

CONFIDENTIAL